small bowel biopsy specimen. No other pathogens were found. At the time of diagnosis the serum drug level of itraconazole was 7·9 μg/ml (levels above 2·0 μg/ml are considered therapeutic). Albendazole and metronidazole were ineffective in ameliorating the patient's diarrhoea. Symptomatic therapy with tinctura opii and loperamide resulted in a decrease of the stool frequency to two to five bowel movements per day. The patient continues to excrete *E bieneusi* in his stool.

Although a single report can provide only limited evidence, in this patient high dose itraconazole failed to protect against the development of *E bieneusi* infection. Further studies are necessary to establish firmly the drug sensitivity pattern of this microsporidium. Because albendazole may provide some palliation and preliminary evidence is available that atovaquone may also have efficacy against *E bieneusi* [D Schwartz, personal communication], we recommend that itraconazole should currently not be considered as a first-line drug for use in *E bieneusi* infections in persons with AIDS.

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Accepted for publication 19 May 1995

Chlamydia trachomatis in gynaecological infections in Luanda, Angola

C trachomatis infection is today one of the most widespread sexually transmitted diseases (STDs) in the world. The major chlamydial affections in man are non-gonococcal urethritis and sterility caused by epididymitis and deferentitis. In females both gynaecological and obstetrical infections such as endocervicitis and pelvic inflammatory disease (PID) are reported, sometimes with severe complications.[1]

The purpose of this study was to evaluate the incidence and the clinical picture of chlamydial infection in females in an African country, as a marker of gynaecological health state.

This study was conducted in 1992 at the Maternity Hospital *Lucrecia Paim*, Luanda, Angola. The sample population was 400 women (age ranging from 14 to 60 years) showing vaginal discharge and/or other symptoms related to the genital area. For the identification of *C trachomatis* on cervical swabs, the indirect immunofluorescence (IFA) with monoclonal antibodies (Microtrak Syva Co., USA) was used. In addition serum was collected and tested for IgG and IgA content by ELISA Chlamydia (Sclavo).

In the cervical swabs of 111 patients, corresponding to 27·75% of the study population, *C trachomatis* was evident. Of these, 68 patients presented single or multiple coinfections with *Candida albicans*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis* (data not shown). The distribution of the symptoms in the 111 patients was hyperaemia 57·6%, cervicitis 51·5%, pelvic pain 41·1%, dyspareunia 36·4%, dysuria 28·8%. single or associated clinical symptoms, observed in 43 patients positive only for chlamydia, are shown in the table. The incidence of endocervical infection appears higher (25·2%) in the age group 20–24 years.

Different methods of contraception were used by the positive patients: six used condom, 24 oral contraceptives, 31 IUD, while 50 did not use contraceptives.

In 80 positive and in 10 negative IFA cases, we have measured the prevalence of anti-*C trachomatis* IgG and IgA in the serum. Only 32 were positive for both IgA/IgG, while 51 were positive for IgA alone confirming the greater sensitivity of this Ig class.

This is the first study on the incidence of *C trachomatis* in Angola and very few studies have reported the frequency of this disease in Southern Africa. The prevalence of 27·75% in females referring to the gynaecological hospital with signs of STD can be considered rather elevated in comparison with other countries of the area. Reports vary from 4·7% in South Africa[2] to 23% in Mozambique.[3]

Distribution of symptoms in 43 patients positive for C trachomatis alone

Symptoms	*Number of patients*	*Percentage*
Hyperaemia	32	71·1
Pelvic pain	24	55·8
Cervicitis	22	48·9
Dysparunia	18	40·0
Dysuria	6	13·3

There are several reasons for stressing the importance of identifying chlamydia and understanding its incidence among the STDs. *C trachomatis* is one of the most important causes of sterility in black Africa.[4] Female sterility is not only a health problem but also a social handicap in African culture. Furthermore, it has been demonstrated that both ulcerative and non-ulcerative STDs play an important role in facilitating transmission of HIV in Africa.[5 6] In South African prostitutes in 1991, Plummer *et al*[5] stressed the importance of the mucosal disruption due to *C trachomatis* in facilitating the HIV transmission. Prostitutes, men frequenting prostitutes and men and women with multiple sex partners are the major groups at risk, but it is certainly important to follow the distribution of STDs also in the general population of countries where such diseases are highly diffused and cause infertility, since prevention and public health are major problems.

These findings emphasise the importance of the introduction of the routine diagnosis of *C trachomatis* for the control of STDs diffusion in developing countries.

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This work was funded by MURST and DGCS-MAE, Italy (National Laboratory of Public Health, Luanda-programme) and by Ministry of Health, Republic of Angola, AIDS control programme. We are grateful to Dr Antonica Hembe, the directorate and the medical team of Lucrecia Paim Hospital of Luanda and to Dr A Bortolan and Dr G Riva for their helpful collaboration.

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Accepted for publication 19 May 1995

Sensitivity of a commercial polymerase chain reaction for different serovars of *Chlamydia trachomatis* present at low titre in clinical samples

Laboratory detection of *Chlamydia trachomatis* is hampered by the fragile and fastidious nature of *Chlamydia*. Considerable efforts have been employed to find a suitable alternative to culture detection which, although highly specific, is costly, tedious and furthermore may only reveal 85% of all infections, even when optimal transport and culture conditions are realised.[1] Numerous authors have developed polymerase chain reaction (PCR) procedures to amplify a variety of chlamydia genes, but it has become apparent that the most simple and sensitive strategy involves targetting a small portion of the ubiquitous *C trachomatis* plasmid.[2] A commercialised version of this test has been produced (Amplicor *Chlamydia trachomatis*, Roche Diagnostic Systems, Branchburg, NJ) and shown to be more sensitive than culture in numerous settings.[1 3] Although it has been reported that all *C trachomatis* serovars may be detected by Amplicor,[3] this has not been shown in samples where *C trachomatis* was present at low titre. It has, however, been previously demonstrated that other non-culture, *C trachomatis* detection strategies perform less well on clinical samples with few infectious particles.[4]

We have employed this commercial procedure retrospectively to analyse residual transport medium from 55 randomly-chosen clinical samples that had been found to give few chlamydial inclusions in culture.[5] They were interspersed with 55 culture-negative specimens and analysed by Amplicor[3] and an in-house PCR.[5] Clinical specimens in 2SP transport medium had to be diluted tenfold in Amplicor specimen transport media prior to PCR.

All 55 culture-positive samples were also positive by PCR as was one of the 55 culture-negative samples. The unique PCR-positive, culture-negative specimen was confirmed positive by the in-house PCR procedure and by direct immunofluorescent staining (MicroTrak, Syva Canada, Kanata, Ontario).

The in-house PCR procedure was employed to type the 56 positive samples[5] but produced sufficient DNA to type only 51 of them. A third round of PCR using primer 5 (GGAGATCCTTGCGATCCTTG) and primer 4[5] was necessary to amplify the remaining five samples. All of the different serovars observed in an analysis of 435 *C trachomatis*-positive urogenital specimens[5] were also present in these 56 samples (see table). This indicated that Amplicor PCR was able to detect all of the common urogenital serovars in clinical specimens even when they were present at low titre. The proportion of serovar F strains was high in this survey as was expected from previous reports that identified this serovar more frequently among isolates with few inclusions in culture.[5]

In the present study a special sample preparation procedure proposed by Roche